3-way ANOVA:

Factorial way:

Hypothesis:-

- $H_{\circ}1$: A is not effective.
- Ha1: A is effective.
- $H_{\circ}2$: B is not effective.
- Ha2: B is effective.
- $H_{\circ}3$: Interaction between A and B is not effective.
- Ha3: Interaction between A and B is effective.

Latin Square Design:

Hypothesis:-

- $H_{\circ}1$: $\mu A = \mu B = \mu c = \mu D$
- Ha1: At least one mean is different from others.
- $H_{\circ}2$: $\mu R1 = \mu R2 = \mu R3 = \mu R4$.
- Ha2: At least one mean is different from others.
- $H_{\circ}3$: $\mu c1 = \mu c2 = \mu c3 = \mu c4$.
- Ha3: At least one mean is different from others.

Test of Goodness of Fit:

Hypothesis:-

If the problem follows normal distribution:

- $H_{\circ}$: sample Data represents a population normally distributed with μ = Value ، δ = Value.
- Ha: Sample Data Does not represent a population normally distributed.

If the problem follows an exponential distribution:

- $H_{\circ}$: Sample Data represents an exponential population distribution with mean rate λ = Value.
- Ha: Sample Data does not represent an exponential population distribution.

Test of Independence:

Hypothesis:-

- $H_{\circ}$: A and B are independent.
- Ha: A and B are dependent.